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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,874	08/25/2003	Vernon M. Williams	*2209-4209.2US (99-0174.0)	3191
24247	7590	12/22/2004	EXAMINER ANDUJAR, LEONARDO	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/647,874	<b>Applicant(s)</b> WILLIAMS ET AL.	
	<b>Examiner</b> Leonardo Andújar	<b>Art Unit</b> 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/03,12/03,06/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is anticipated by patented claim 1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 is a generic claim whereas patented claim 1 is a species claim. Under the current practice the generic claims should be rejected on the grounds of obviousness-type double patenting (see MPEP 806.04(i)).

Claim 2 is anticipated by patented claim 2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 is a generic claim whereas patented claim 2 is a species claim. Under the current practice the generic claims should be rejected on the grounds of obviousness-type double patenting (see MPEP 806.04(i)).

Claim 3 is anticipated by claim 6.

Claim 4 is anticipated by claim 7.

Claim 5 is anticipated by claim 12.

Claim 6 is anticipated by claim 3.

Claim 7 is anticipated by claim 4.

Claim 8 is anticipated by claim 5.

Claim 9 is anticipated by claim 9.

Claim 10 is anticipated by claim 13.

Claim 11 is anticipated by claim 14.

Claim 12 is anticipated by claim 15.

Claim 13 is anticipated by claim 1.

Claim 14 is anticipated by claim 2

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 1- 4 and 6-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneider et al. (US 5,693,981).

4. Regarding claim 1, Schneider teaches (e.g. fig. 1-4) a heat sink for assembly with a semiconductor device component 420, comprising: a heat transfer element 400 configured to be secured to the semiconductor device component and including at least one non-linear passageway therethrough (the annular passageway formed between two layer 430).

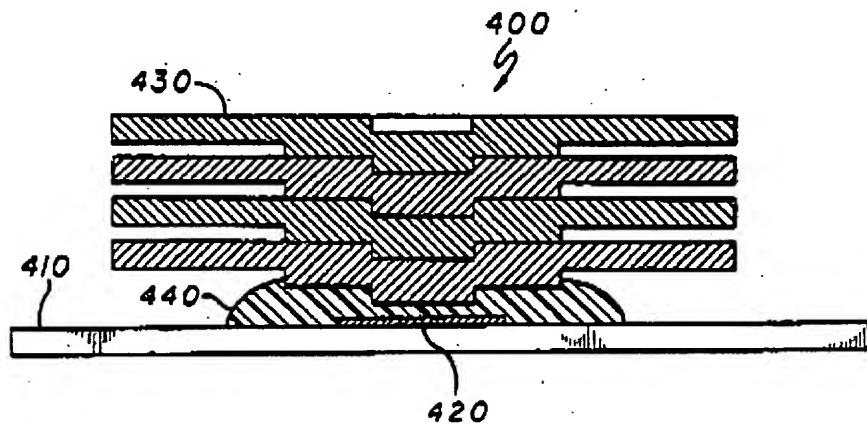


FIG. 4

5. Regarding claim 2, Schneider teaches that the at least a portion of the heat transfer element comprises a plurality of superimposed, contiguous, mutually adhered layers of thermally conductive material (col. 6/lls. 60-65 & col. 7/lls. 1-4).

6. Regarding claims 3 and 4, Schneider teaches that the thermally conductive material comprises a metal such as copper, aluminum or tungsten (col. 6/lls. 60-65 & col. 7/lls. 1-4).

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7. Regarding claim 6, Schneider teaches that the heat transfer element comprises a plurality of particles that are secured to one another (inherent). Note that the layers are fused together by sintering (col. 6/lls60-65 & attached definition)

8. Regarding claim 7, Schneider teaches that the particles are sintered together (col. 6/lls. 60-65). In this case, the grains from one layer are sintered to the grains of an adjacent layer in order to make the attachment (col. 6/lls. 60-65).

9. Regarding claim 8, Schneider teaches that the adjacent ones of the particles are secured together with a binder. This is an inherent characteristic of a metal element made by sintering.

10. Regarding claim 9, Schneider teaches that the plurality of superimposed, contiguous mutually adhered layers comprises sheets of the thermally conductive material such as copper (col. 7/lls. 1-4).

11. Regarding claim 10, Schneider teaches that the adjacent sheets are secured together with an adhesive (col. 2/lls. 62-65).

12. Regarding claim 11, Schneider teaches that adjacent sheets are thermally bonded together. Note that the layers are fused together by sintering (col. 6/lls60-65 & attached definition).

13.

14. Regarding claim 12, Schneider teaches that the at least one non-linear passageway is configured to permit airflow there through (col. 8/lls. 48-51).

15. Regarding claim 13, Schneider teaches a heat dissipation element adjacent to the heat transfer element and extending to a location remote from the semiconductor

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device component (e.g. fig. 4). In this case, the first and second layers are recognized to be the heat transfer element whereas the third and fourth layers are recognized to be the heat dissipation element.

16. Regarding claim 14, Schneider teaches that at least portion of the heat dissipation element comprises a plurality of superimposed, contiguous, mutually adhered layers of thermally conductive material (col. 7/lls. 1-4).

17. Regarding claim 15, Schneider teaches that the heat dissipation element includes a plurality of fins.

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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20. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al. (US 5,693,981) in view of Tseng (US 6,175,497).

21. Regarding claim 5, Schneider shows most aspect of the instant invention including a heat sink comprising copper (col. 6/lis. 60-65 & col. 7/lis. 1-4). Schneider does not teach that the heat sink may comprise a ceramic or glass. Nevertheless, Tseng teaches that heat sinks can be made of ceramic (col. 3/lis. 62-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the heat sink disclosed by Schneider of ceramic as taught by Schneider in order to reduce the device manufacturing cost.

### ***Conclusion***

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).



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Patent Examiner  
Art Unit 2826  
12/07/2004